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AN ANALYSIS OF A CONTINGENCY PROGRAM ON DESIGNATED DRIVERS AT A COLLEGE BAR

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The present study evaluated the effects of prompts and incentives on designated drivers in a bar. We defined the dependent variable as the percentage of customers either functioning as or riding with a designated driver. We used an ABCA design to evaluate the effectiveness of prompts and incentives on the dependent variable. Results indicated that the intervention was successful at increasing the ratio of safe to unsafe passengers in a bar.

Key words: designated driver, incentives, prompts

In 2007, there were 3,221 traffic fatalities reported in the state of Florida, 38.6% of which were alcohol related, and a total 64,410 arrests were made for driving under the influence (DUI; Florida Department of Highway Safety and Motor Vehicles [DHSMV], 2008, n.d.). In the state, mandatory penalties for a conviction of DUI consist of a minimum 50 hr of community service, up to 1 year probation, license revocation for a minimum of 180 days, and 12 hr of DUI school (Florida DHSMV, 2009; Florida Department of Motor Vehicles, 2009). Solomon (2009) estimated that the cost of a DUI arrest in the United States averages $10,000 or more, not including costs associated with the injury of involved parties, life insurance premium increases, and loss of income.

According to the National Highway Traffic Safety Administration (2009) a designated driver (DD) is ''a drinking-age adult who agrees not to drink any alcoholic beverages and to safely transport anyone else home.'' Brigham, Meier, and Goodner (1995) conducted research aimed at increasing the number of DDs at a bar, using visual prompts inside the bar and nonalcoholic beverages as incentives for any participating DD. The authors validated a self-identified DD by following the DD to his or her car and counted DDs as an individual who got into the car and drove away. Elwood, Lloyd, Morris, Tofte, and Zandecki (2005) used verbal praise as an additional contingency for self-identified DDs. Saksefski, Kazbour, Deller, and Aboul (2008) used a portable breathalyzer device to ensure a more accurate measure of participants' blood alcohol concentration (BAC) and provided incentives for any person under 0.05 BAC. All three studies provided prompts inside the bar, and each demonstrated an overall increase in the number of DDs across phases. The purpose of the current study was to expand on this research to increase the use of a DD at a bar.

METHOD

Participation and Setting

We conducted the study at a bar located across the street from a large southeastern university. Over a 6-month period, there were 14 DUIs within a 0.5-mile radius of the bar of interest (Tallahassee Police Department, 2008). Any customer in the bar during the research was eligible for participation in the study and could declare him- or herself a DD. A bar employee checked identification at the front door and only allowed entrance for people 21 years and

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older. For purposes of data collection, we gave each customer who walked through the front door of the bar a plain white wristband. Next, we tallied the number of bands at the end of the night, which indicated the total number of patrons at the bar for the night.

Participants included any bar patron who voluntarily submitted a breath sample and was driving one or more people home. Although 0.08 BAC is currently the legal limit for impaired driving in all 50 states, a BAC of 0 was used for the absolute safety of everyone involved in the study. Research suggests that as little as one alcoholic drink can impair driving and produce some loss of judgment in adults (California Department of Alcohol and Drug Programs, 2008; Watson, Watson, & Batt, 1981). The legal limit is simply the BAC number above which a driver is automatically guilty of driving under the influence (or some related statute) without any other evidence. Many states allow for DUI charges and conviction when a driver has a lower BAC reading but fails field sobriety tests, drives erratically, or otherwise shows signs of being impaired (Florida DHSMV, 2009).

The authors administered breath tests and handed out incentives after 1:30 a.m. to minimize the possibility of people claiming to be a DD, only to leave the bar and drink elsewhere (county law prohibited the sale of alcohol in bars after 2:00 a.m., and most bars give a last call for alcohol well before 2:00 a.m.). All interaction with participants took place at the front door of the bar, which was used for both entry and exit. One or two of the research assistants on staff assisted in answering questions and managing consent forms. Breath test administration took approximately 10 s. Therefore, even with multiple participants, wait time was minimal. A total of 22 customers claimed to be a DD across all phases of the study. Data collection occurred on Thursday and Friday nights from 12:00 a.m. until 2:00 a.m. across 8 weeks for a total of 16 sessions. The university's institutional review board approved all procedures.

Experimental Design

We used an ABCA experimental design in which A was baseline, B was bar prompt plus pizza, and C was advertisement for pizza and gas to evaluate the effectiveness of prompts and incentives on the percentage of bar patrons functioning as or riding with a DD. Any bar patron on any night could participate. Thus, the unit of analysis did not necessarily involve a single subject or group of the same people, but rather any bar patron at any point during the study.

Data Collection and Interobserver Agreement

The device used to establish BAC was an Alco-Sensor IV by Intoximeters Inc. (which may be purchased at the company Web site, www.intox.com). The device is an automated handheld breath alcohol instrument that is approved by the U.S. Department of Transportation. To ensure accurate readouts during data collection, we calibrated the instrument using a dry-gas method before the first session of the study.

Each breath submission occurred at the front door of the bar in clear view of all customers and staff. Each participant blew into the mouthpiece of the breathalyzer until a loud and distinct clicking sound indicated the completion of the breath submission. At this time, Observer 1 recorded the digital readout on the breathalyzer. Next, Observer 2 independently viewed and recorded the readout. We calculated interobserver agreement by dividing agreements (intervals in which both observers recorded the same readout) by agreements plus disagreements (intervals where the two observers did not record the same readout) and converted this ratio to a percentage. Interobserver agreement was 100%.

General Method

Across all conditions, the researcher read the following statement to any self-identified DD whose BAC was over 0:

> Thank you for participation in our study and for your willingness to submit to a breath-alcohol test. Because your BAC was not zero, you have not met our criterion to be identified as a DD. We appreciate any effort you have made to minimize your drinking, but want you to be aware that even breath-alcohol levels below 0.08 (legal limit in the state of Florida), can impair performance of complex tasks like driving and might also leave you vulnerable to DUI charges if you were to be observed violating traffic laws, driving carelessly, or were involved in a crash. Thus, we discourage you from driving until all the alcohol in your system has been metabolized. If you need transportation before that, we will help you to arrange it.

During the intervention conditions, the researcher told individuals whose BAC was over 0, ''You are not eligible for the incentives.''

Baseline

Any DD was eligible for free soft drinks anytime by declaring him- or herself a DD to the bartender, in accordance with an established bar policy. Although this program had been in place at the bar for over 2 years, all customers may not have been aware of it. Therefore, experimenters placed 12 tabletop signs (30.5 cm by 15.2 cm) around the bar in clear view of the customers, notifying them of the opportunity for free soft drinks for DDs. The bartender used the bar's public address system at 12:30 a.m. and at 1:30 a.m. to announce the opportunity for free soft drinks by contacting the researchers who stood near the front door. When approached by an interested party, the researcher described the study, provided a free soft drink (to all self-identified DDs, irrespective of BAC), and asked the person to participate by submitting a breath sample before departure from the bar.

In-Bar Prompts plus Pizza

This condition consisted of prompts inside the bar, advertising the opportunity for free pizza (with the same 12 signs used in baseline, except that the signs advertised free pizza and soft drinks) to any group of 5 people who had a DD. The bartender announced this on the public address system at 12:30 a.m. and 1:30 a.m. Anyone who identified him- or herself as a DD received a bright blue wristband and was asked to submit a breath sample on the way out of the bar. In the instance that a 0 readout was indicated by the breathalyzer, the DD and up to 4 other people in the group received two large slices of pepperoni or cheese pizza and free soft drinks.

Posters in the Community

One week before data collection during this phase, the first author placed a total of 75 posters on the walls and windows of local businesses and apartments within a 4-mile radius of the bar. In addition to pizza, we supplied $5 gas cards as a reinforcer for being a DD for the remainder of Phase C. The posters were each 61 cm by 30.5 cm and read, ''DESIGNATED DRIVERS GET FREE GAS & PASSENGERS ENJOY FREE PIZZA AT [bar name] THURSDAY AND FRIDAY NIGHTS NOW THROUGH NOVEMBER 21ST!'' The posters remained in place until the return to baseline.

Newspaper and Radio

This intervention consisted of the broadcast of a radio interview with the first author, along with a newspaper story. The 3.5-min interview ran twice, 2 days before the first session of the intervention. The author explained the research and provided information regarding where and when the listeners could participate. The newspaper story, headlined ''Designated Drivers Rewarded,'' ran on the front page of the local university's newspaper publication. The release of the paper occurred 3 days prior to data collection and contained the same information as the radio interview.

RESULTS AND DISCUSSION

Figure 1 indicates the ratios of customers either functioning as or riding with a DD across all phases of the study. During baseline, the percentage of customers functioning as or riding with a DD was below 0.5% (1 customer) during the 4 nights of baseline. During the 4

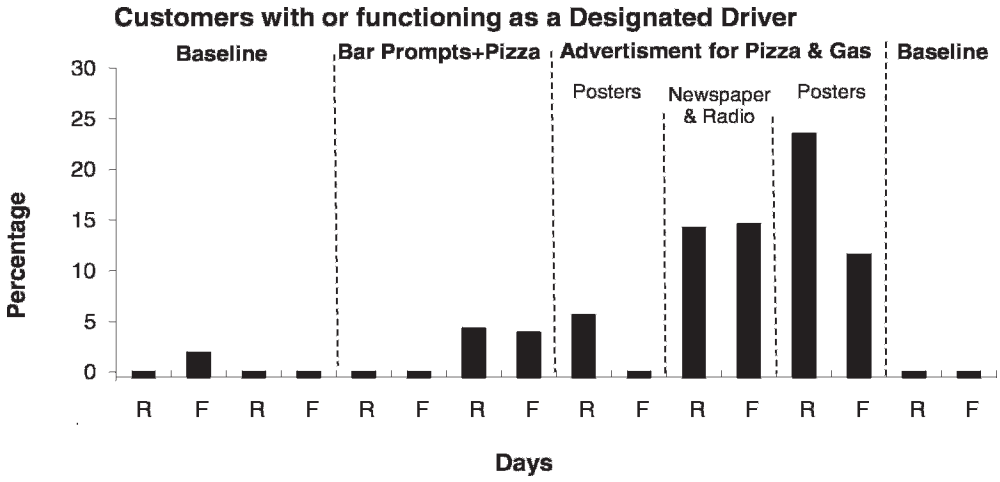

Figure 1. Percentage of bar patrons functioning as or riding with a designated driver across all conditions including baseline, in-bar prompts plus pizza, advertisement for pizza and gas, and the final baseline. Note that the *y* axis maximum is 30%.

nights of data collection during the in-bar prompts plus pizza intervention, 5 customers had a DD with a BAC of 0 ($M = 2\%$). In the 6 nights of data collection during the advertisement for pizza and gas intervention, a total of 46 customers were either riding with or functioning as a DD ($M = 12\%$, with a high of 24%). During the second baseline, the percentage of customers riding with a DD dropped to 0. A total of 6 of the 22 participants had BACs over the 0 criterion. Of those participants, only 1 had a BAC over the legal limit of 0.08.

The low cost of the program encourages its use in establishments that serve alcohol. There was virtually no cost to implement the program. All pizza was donated by a local pizzeria, and all gas cards were donated by a local distributor of alcohol. Everyone involved supported and applauded our efforts. The cost of the intervention would have been approximately $150 without the support.

Although the DD program was an overall success, there are some questions to consider. First, our count of the percentage of safe customers to total customers may not be accurate, because we counted customers who walked into the bar during data-collection hours but not customers already in the bar. Next, we removed the intervention at the end of the study, presumably affecting the number of customers who would have a DD from that point forward. Transfer of the program to the bar ownership would have required one to two more employees scheduled per night at the bar to fill the positions of the researchers. Because participation was voluntary, there was no way to determine how many individuals were DDs but chose not to participate. Of the people who did participate, there is some possibility that they were simply consumers of the free products and did not drive anyone home.

There is much room for continued research on the topic of designated drivers. Our society places a great deal of effort on applying consequences such as negative reinforcement and punishment as they pertain to drinking and driving. Success might be obtained more easily by providing positive reinforcement for the responsible behavior associated with having a DD, as opposed to providing those negatively reinforcing and punishing consequences for the irresponsible and potentially more deadly behavior of drinking and driving.

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